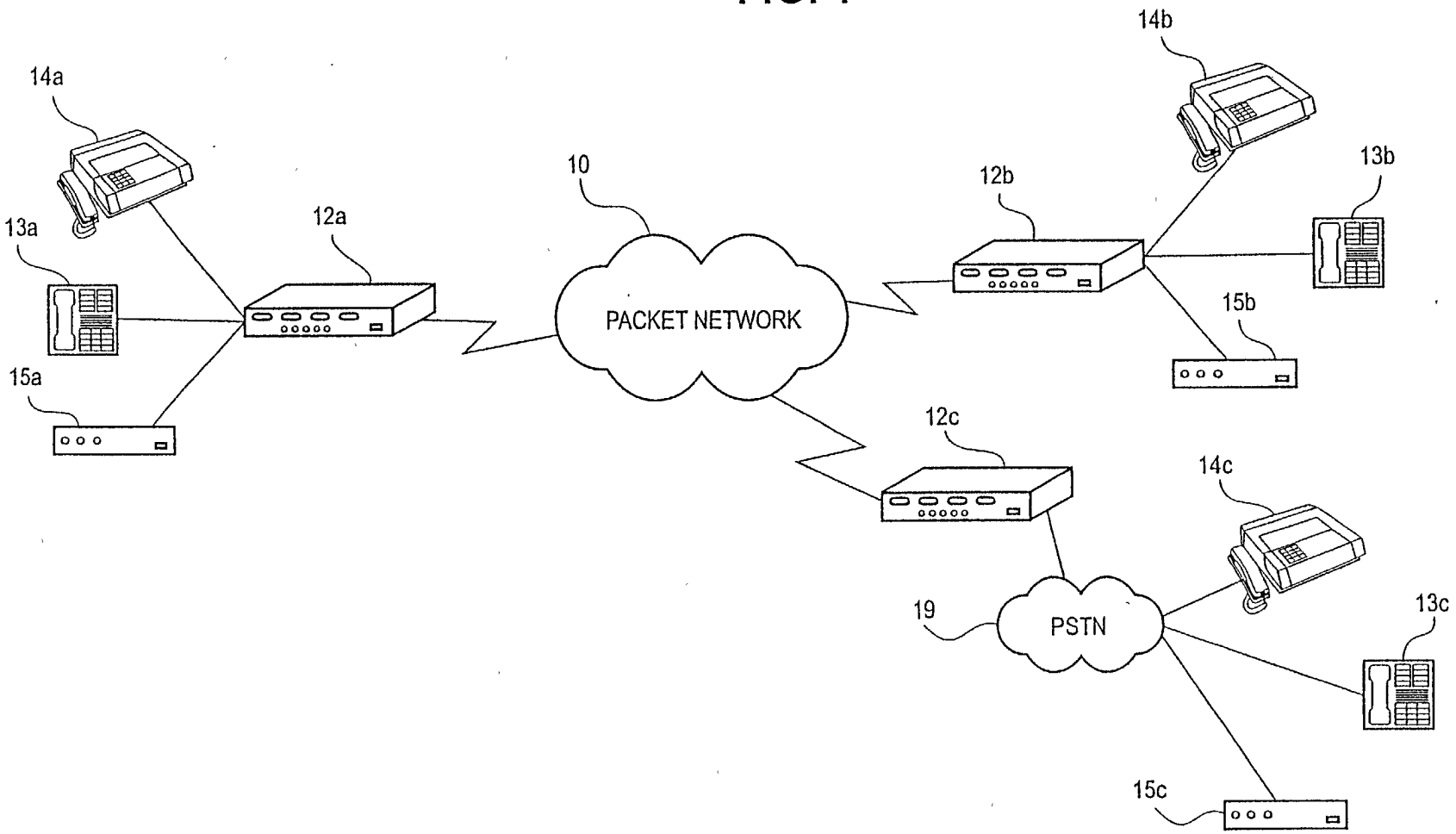
20220207.6297800T

FIG. 1



20220208291800T

FIG. 1A

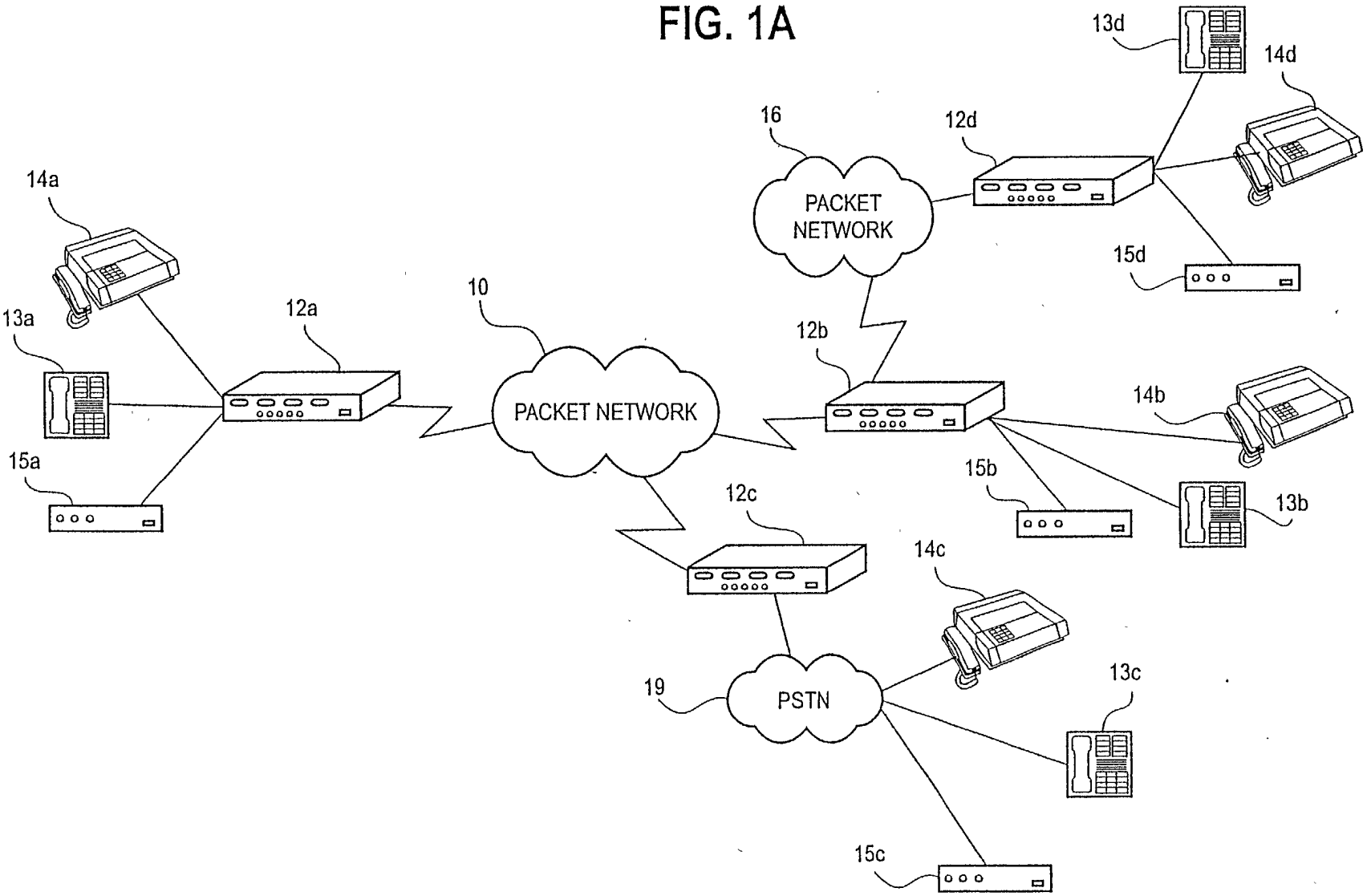


FIG. 2

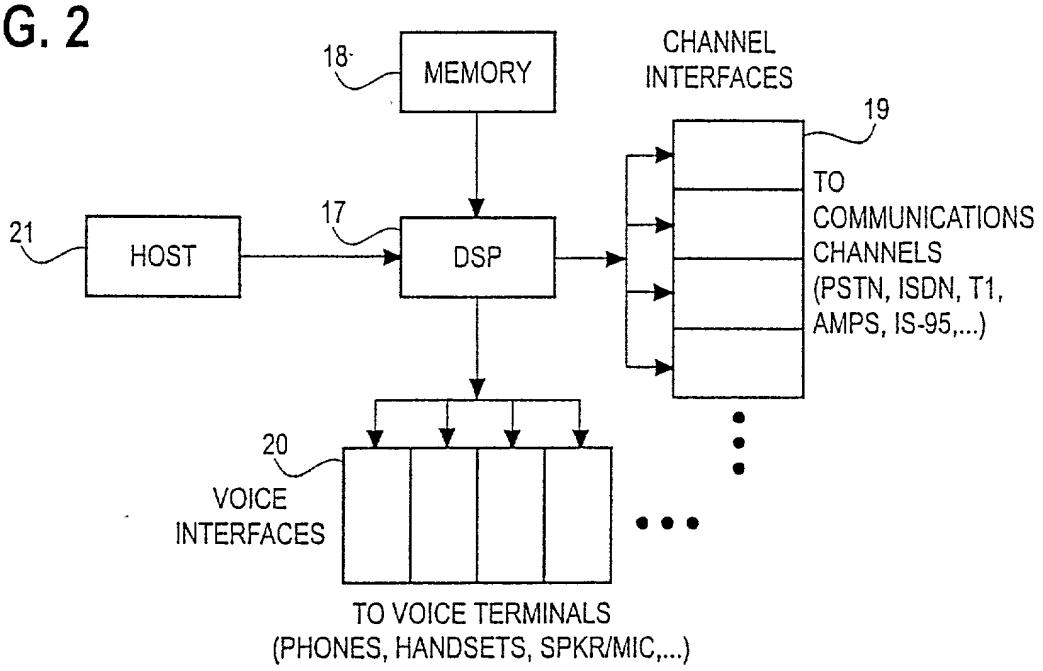

18
MEMORY
CHANNEL INTERFACES
19
TO COMMUNICATIONS CHANNELS (PSTN, ISDN, T1, AMPS, IS-95,...)
21
HOST
17
DSP
20
VOICE INTERFACES
TO VOICE TERMINALS (PHONES, HANDSETS, SPKR/MIC,...)

FIG. 3

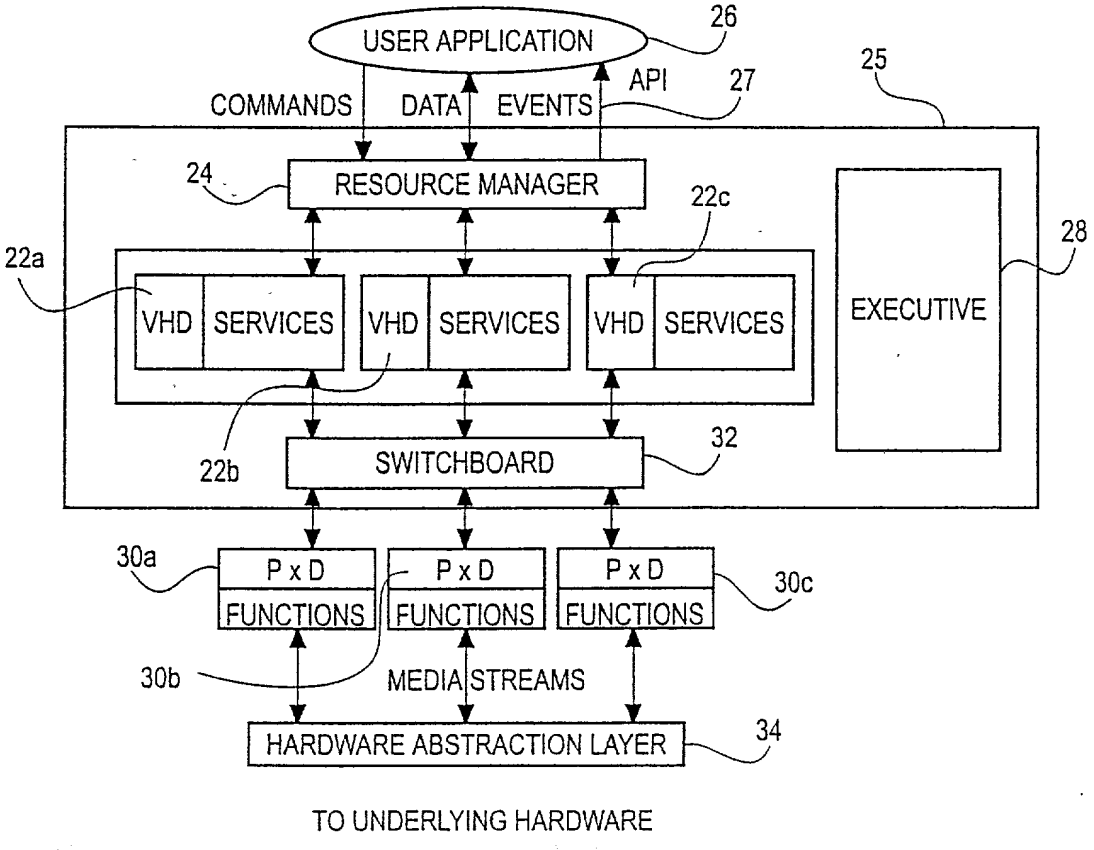
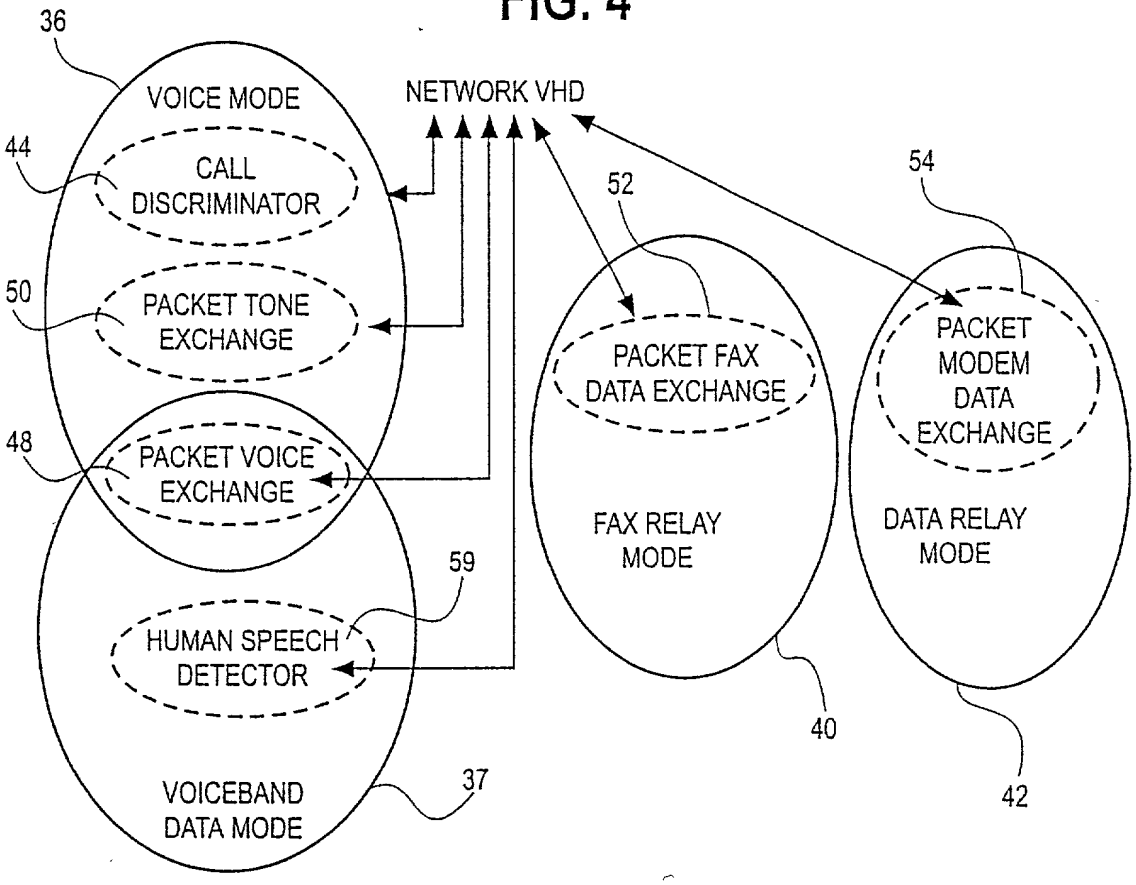

USER APPLICATION
26
COMMANDS
DATA
EVENTS
API
27
25
24
RESOURCE MANAGER
22c
22a
28
VHD
SERVICES
VHD
SERVICES
VHD
SERVICES
EXECUTIVE
22b
SWITCHBOARD
32
30a
P x D
FUNCTIONS
P x D
FUNCTIONS
P x D
FUNCTIONS
30c
30b
MEDIA STREAMS
HARDWARE ABSTRACTION LAYER
34
TO UNDERLYING HARDWARE

FIG. 4


36
VOICE MODE
NETWORK VHD
44
CALL DISCRIMINATOR
50
PACKET TONE EXCHANGE
48
PACKET VOICE EXCHANGE
59
HUMAN SPEECH DETECTOR
VOICEBAND DATA MODE
37
52
PACKET FAX DATA EXCHANGE
FAX RELAY MODE
40
54
PACKET MODEM DATA EXCHANGE
DATA RELAY MODE
42

20220629160017

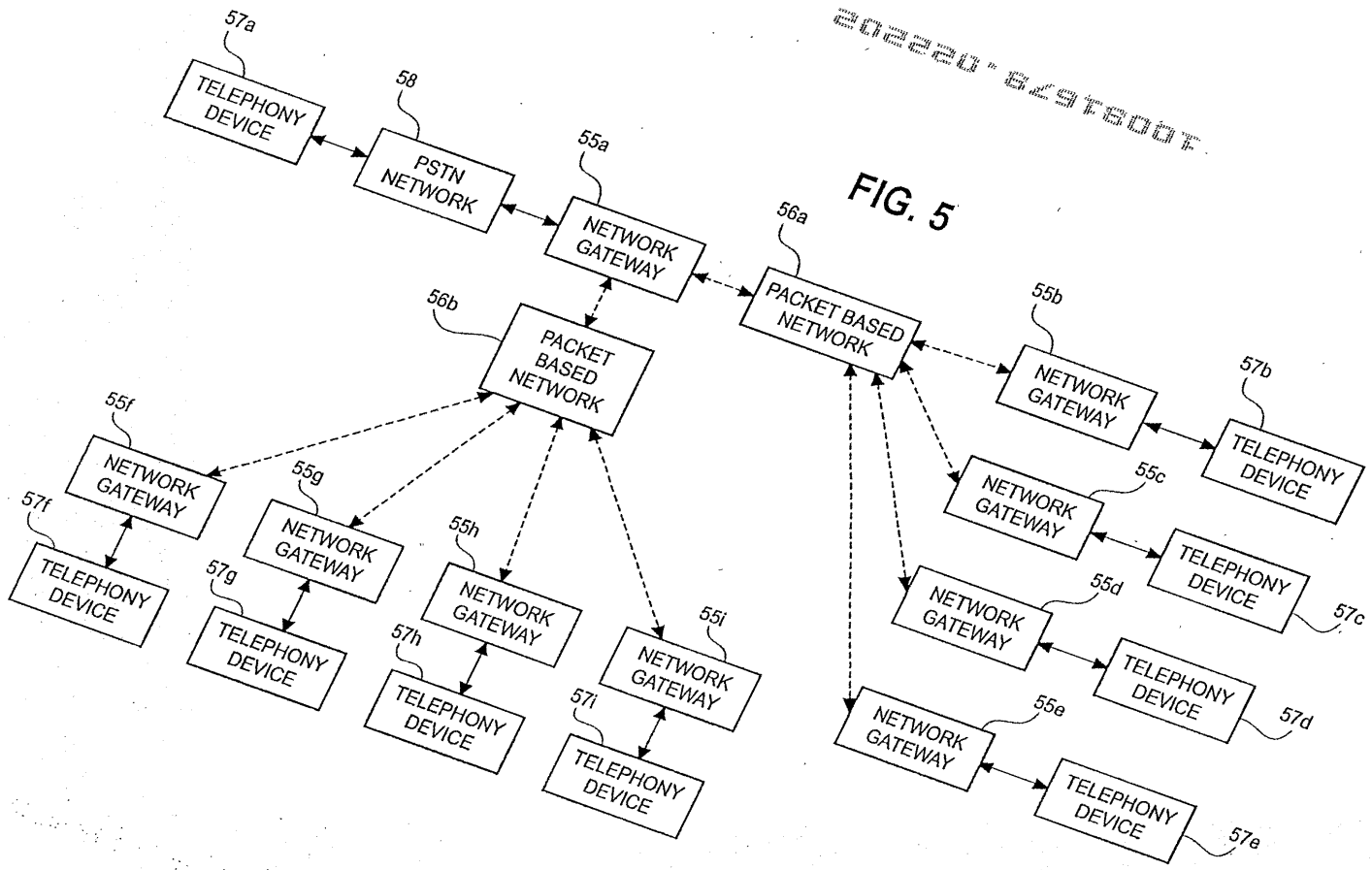
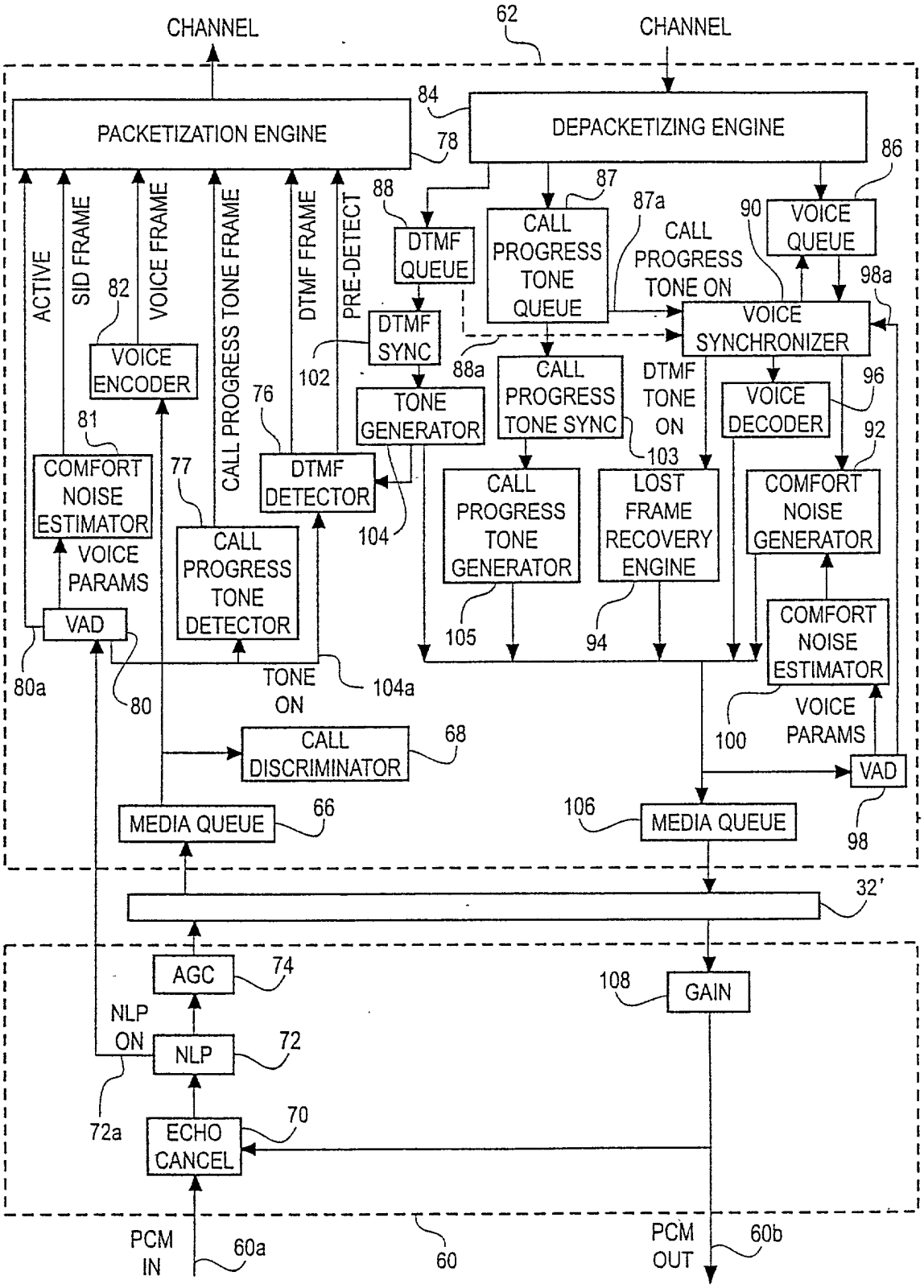


FIG. 5

FIG. 6


CHANNEL
62
CHANNEL
PACKETIZATION ENGINE
84
DEPACKETIZING ENGINE
78
86
ACTIVE
SID FRAME
VOICE FRAME
CALL PROGRESS TONE FRAME
DTMF FRAME
PRE-DETECT
88
DTMF QUEUE
87
CALL PROGRESS TONE QUEUE
87a
CALL PROGRESS TONE ON
90
VOICE QUEUE
82
VOICE ENCODER
DTMF SYNC
102
88a
98a
VOICE SYNCHRONIZER
76
TONE GENERATOR
CALL PROGRESS TONE SYNC
DTMF TONE ON
103
VOICE DECODER
96
81
77
DTMF DETECTOR
92
COMFORT NOISE ESTIMATOR
104
CALL PROGRESS TONE GENERATOR
LOST FRAME RECOVERY ENGINE
COMFORT NOISE GENERATOR
VOICE PARAMS
CALL PROGRESS TONE DETECTOR
VAD
105
94
COMFORT NOISE ESTIMATOR
80a
80
TONE ON
104a
100
VOICE PARAMS
CALL DISCRIMINATOR
68
VAD
MEDIA QUEUE
66
106
MEDIA QUEUE
98
32'
AGC
74
108
GAIN
NLP ON
NLP
72
72a
ECHO CANCEL
70
PCM IN
60a
60
PCM OUT
60b

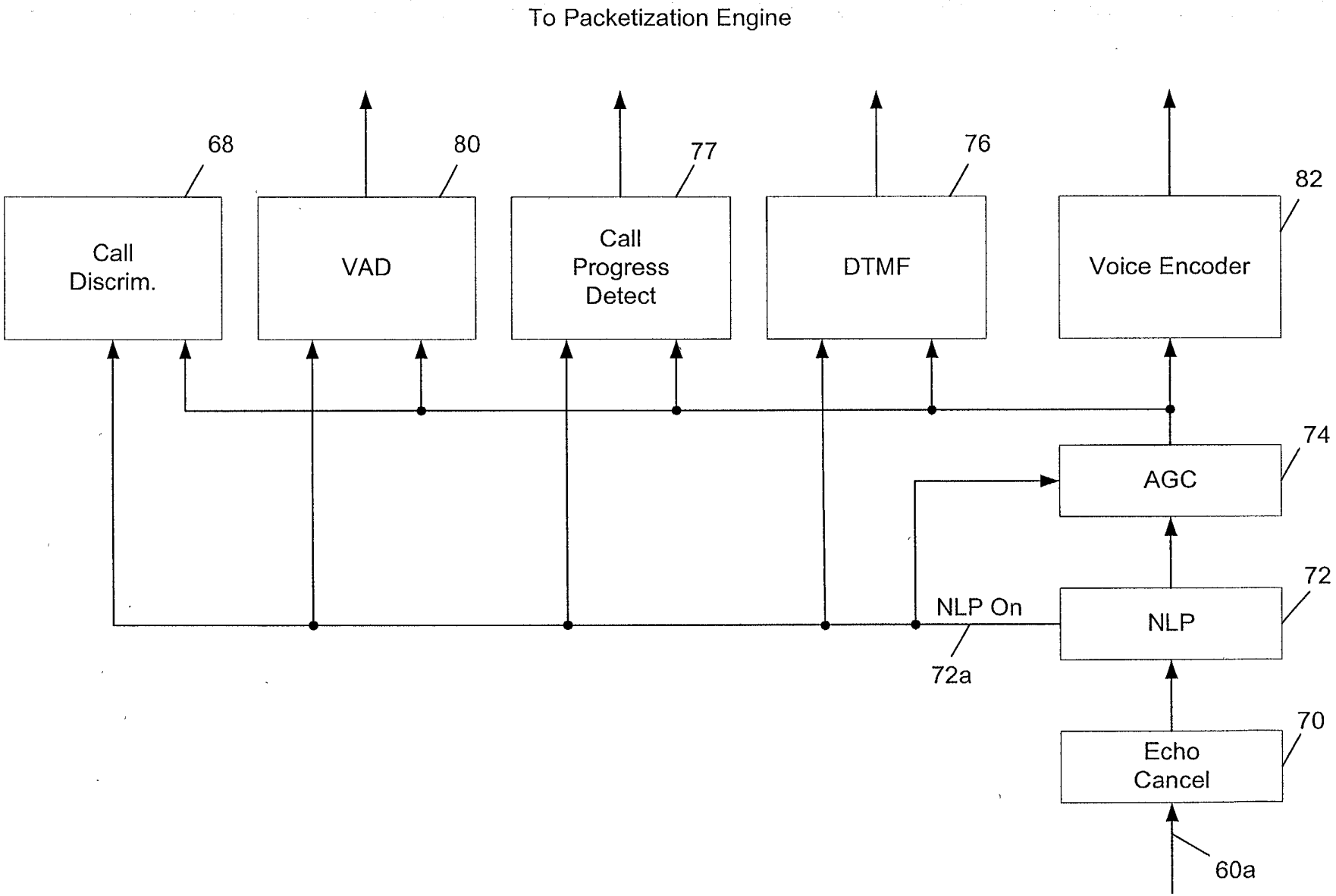

To Packetization Engine
68
80
77
76
82
Call Discrim.
VAD
Call Progress Detect
DTMF
Voice Encoder
74
AGC
72
NLP On
NLP
72a
70
Echo Cancel
60a

FIG. 7

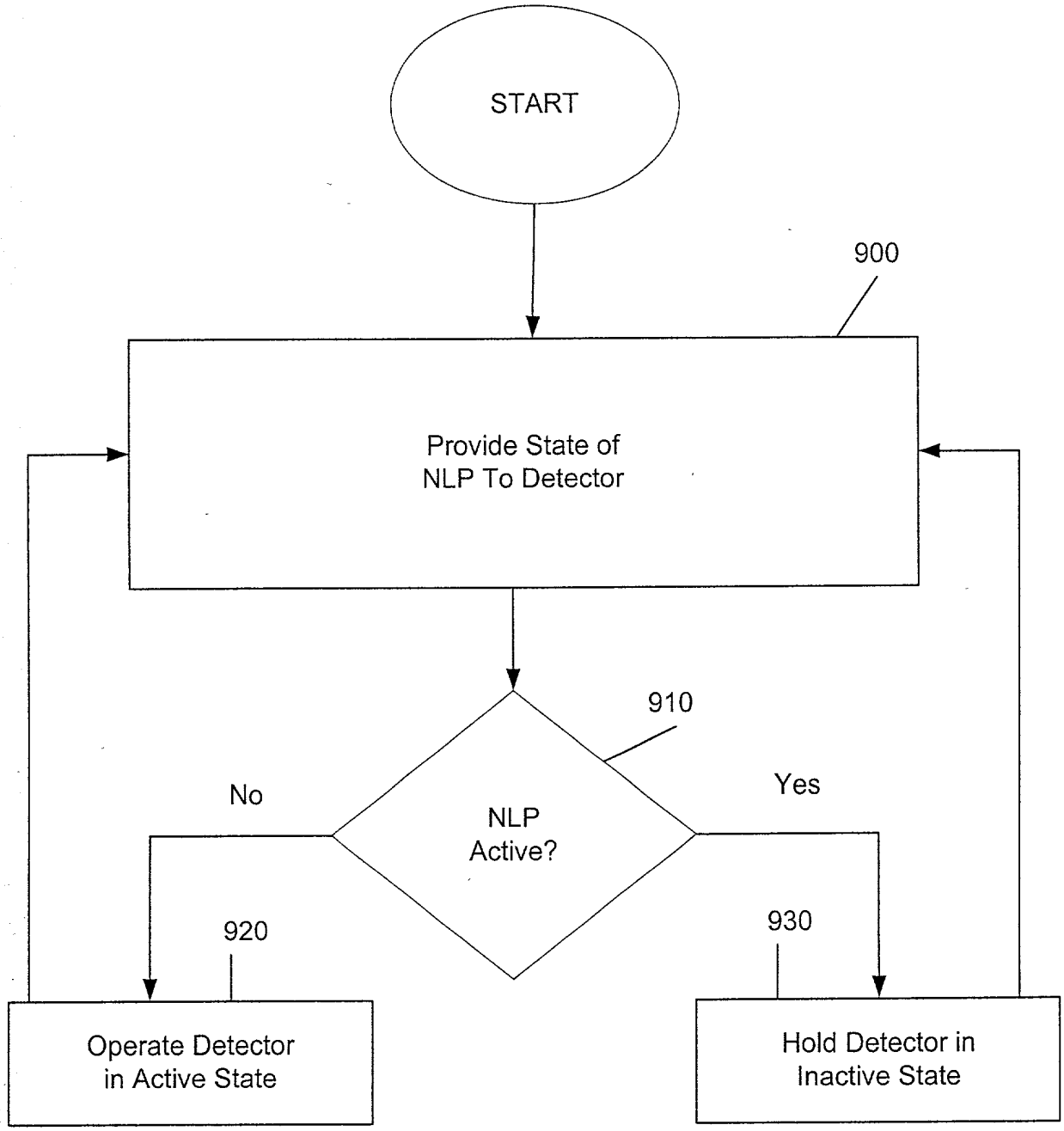

START
900
Provide State of
NLP To Detector
910
NLP
Active?
No
Yes
920
930
Operate Detector
in Active State
Hold Detector in
Inactive State

FIG. 8

20220° 6,291,601

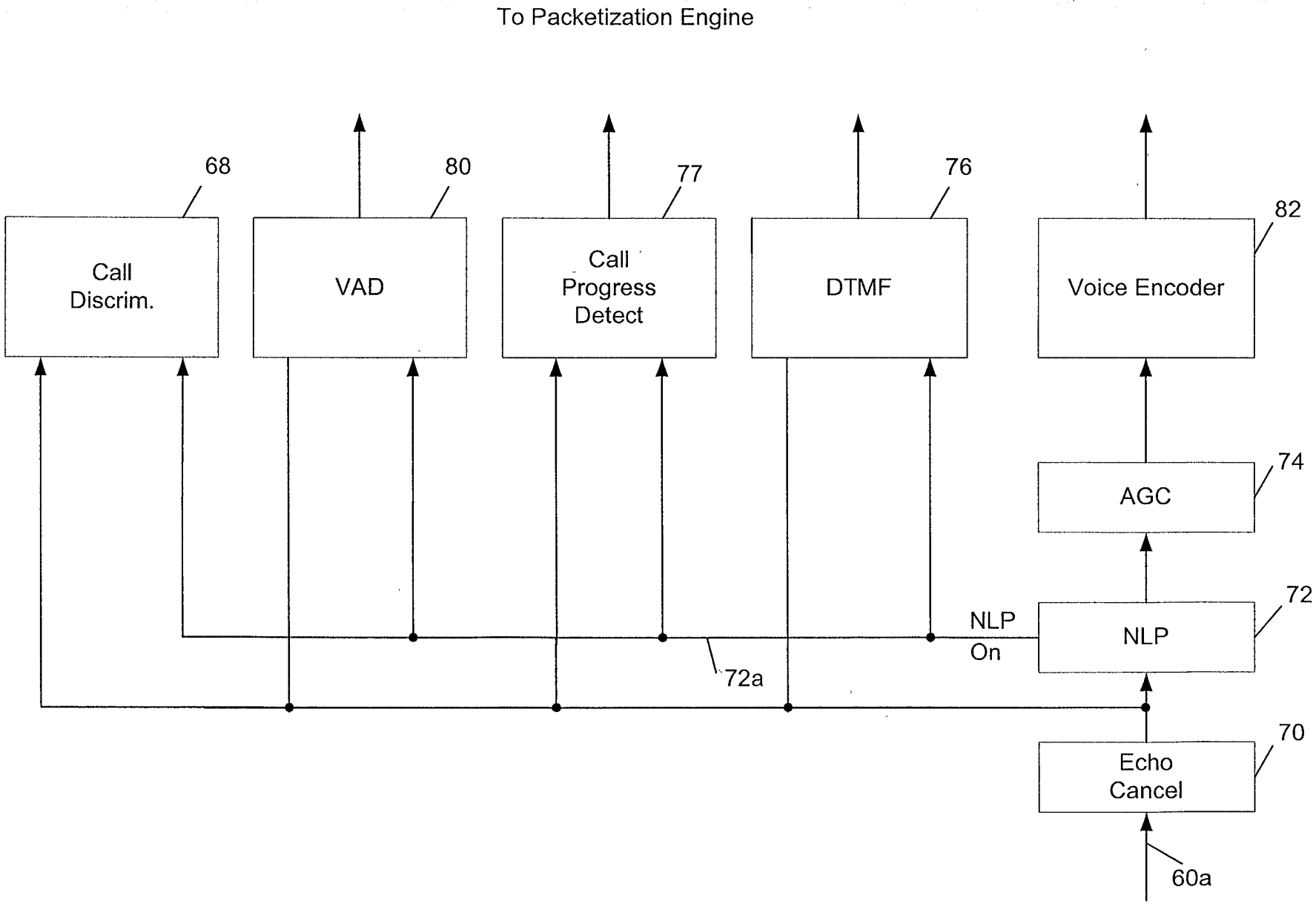


FIG. 9